CASE REPORT

Lessons from the Italian Front Lines on Managing the COVID-19 Pandemic

FULL TRANSCRIPT

Edited by Kathie Paul Wilkerson and Dhwani Shah, COVID-19 Evidence Service staff.

Stanford COVID-19 Evidence Service Co-Leads

Contact Us: covid19evidence@stanford.edu

We asked a group of front line physicians from Italy what they have learned from the COVID-19 pandemic. This full transcript provides details of their advice.

Larry CHU, MD
Professor of Anesthesiology,
Stanford University School of Medicine

Amy PRICE, DPHIL (OXON)
Senior Research Scientist,
Stanford University School of Medicine
Larry Chu: All right, I'm going to go ahead and get started. Welcome everybody. Welcome to our webinar, I'm Dr. Larry Chu and I'm here today with an esteemed panel of guests including my co-host, Dr Bassam Kadry, who I will introduce in a moment. We're here today to learn from some profound experts, clinicians, anesthesiologists, surgeons from Italy. These are people who are managing the COVID-19 pandemic on the front lines and who have some profound knowledge to share with us about what we may expect to be dealing with here in the United States soon. So this is an important webinar. I want to begin by, first of all announcing and thanking our panelists, our clinicians from Italy for the work that they've done, the experience that they're going to share. It is a very difficult time over there. They're dealing with some tremendous conditions, so for them to even take a small amount of time to spend with us it's very important to them and to us.

Larry Chu: I thank them profoundly for spending some time with us today, we do greatly appreciate it. I also want to remind our audience who's tuning in, that this session is being recorded and we will and do have the intention to be able to share this with you, both as edited questions as well as transcripts, we will provide text transcripts. I also want to mention that we really encourage questions, so for those of you who are tuning in to us via our Zoom platform, you should be able to locate the chat window which is to the right side of your screen, and ask questions. There will be points throughout the webinar that I will jump in as the audience today to convey your questions to the panelists. That would be my job, but please ask your questions through the chat windows and we'll correct them. If you're joining us on Twitter, I have a team of people in the lab who help with live stream, some of the webinar on Twitter. Dr. Amy Price will be helping with that. Kathie Wilkerson and Dhwani Shah from the AIM Lab are helping with the Zoom panels today.
Larry Chu: Share your questions with us. Finally, I want to be very brief in the introduction, since I want to spend most of the time with the panelists today. Before I hand off to Dr Kadry, I want to frame the problem for you. We are very fortunate actually. Sky news did a piece today about some of the challenges facing clinicians in Italy. I'm going to actually give Mike Wyant from the Aim Lab the screen to live stream a video that came out of the news today that shows some of the conditions. He has a better internet connection. So I'm going to ask Mike, our digital media specialist to play it up for you and then when we come back on the other side of the video. Bassam Kadry is going to take over and introduce us to the panelists. There's no sound, you're not playing any sound. You're muted, there's no sound. You're muted. We want to play it again.
Stuart Ramsay: They're fighting a war here and they are losing. The sheer numbers of people succumbing to the Coronavirus is overwhelming. Every hospital in Northern Italy. Staff are working flat out trying to keep these people from deteriorating further. They're trying to stop dying. This isn't an intensive care unit, it's an emergency ward. The ICU is full. People have only just arrived here and they're in terrible shape. This is an absolute constant. This killer pandemic is virtually out of control. The patients are literally gasping for air. The plastic bubbles the staff struggle to communicate through attempt to equalize the air pressure in the lungs.

Nobody expected this. Nobody thought they'd be treating so many so quickly, and it's not like flu. It is chronic pneumonia and it is killing hundreds each day.

Roberto Cosenti...: There are now 15 patients.

Stuart Ramsay: The doctors say they've seen nothing like it before and are warning other countries, especially the United Kingdom, that they will see it as well. People who keep describing this as like flu, it's worse than that?

Roberto Cosenti...: No, it's definitely not the same. I'm thinking mass pneumonia. More pneumonia than flu. Because most people get pneumonia and as I said before, it's a very severe pneumonia. It's a massive strain for every health system, because we see every day 50 to 60 patients coming to our emergency department with pneumonia, and most of them are so severe, they need a very high FiO2 or oxygen. We have to reorganize our emergency room and our hospital in three levels of intensity, as you saw.
Stuart Ramsay: This is the main hospital in Bergamo in Lombardy province. It’s one of the most advanced hospitals in Europe, but it’s the most hard hit of all the hospitals in Italy. The town is the center of the epidemic here. This isn’t a ward, this is a waiting room. Wherever you go, people are on gurneys in corridors and meeting rooms, they’re everywhere. All the medical staff urge other nations to see what’s happening and lock their nations down right now, or face this.

Lorenzo Graziol...: What I would suggest is just shut down to stop all the outbreak and not come in this kind of situation that is very, very difficult to manage.

Stuart Ramsay: Can I ask you personally what it's been like?

Lorenzo Graziol...: I never felt so stressed in my life. I’m an intensivist and I’m quite used to intense moments and the choices. People are critical and will die without any treatment, and you make the difference. But when you’re at this point, you realize that you are not enough. We are 100 anesthetists here. We are doing our best, but maybe it's not enough.

Test team membe....: We are performing the test for the nasal swab, to detect Coronavirus.

Stuart Ramsay: The problem facing health services across the world is that when the infection curve goes up, it rockets and all the resources, all the testing, all the supplies, are used up instantly, multiple hospitals all at once. What's staggering is that Italy is doing lots of testing, thousands upon thousands are being tested, so far about 4,000. The numbers keep changing and actually completely recovered. The crucial point is that about the same number are dying.

Stuart Ramsay: They're sort of neck and neck and it seems like you either live and recover, or you die. Something nobody expected. Bergamo wanted us to see this, to show what a catastrophic emergency nobody has experienced before, looks like. They're calling it the apocalypse and this is what it looks like. The message to us is simple, get ready. Stuart Ramsay, Sky News, Bergamo, Italy.
Bassam Kadry: With that sobering piece, I think I’m just going to dive into the meat of the topic. First, again, I want thank all the attendees who are attending this webinar and also want to thank our panelists who are taking time from their busy schedule to share their experience. Just a little bit of the ground rules. The target audience for this webinar are anesthesiologists, intensivists, perioperative staff. The rationale for doing this webinar was primarily to see if they were going to give themselves advice on what they would’ve done differently two weeks ago, what would they share. This is unprecedented times. The way the mechanics of this will work is that we will go through each topic and try to provide time for Q&A at the end of each topic.
The topics are hospital capacity management, workforce capacity, safety triage and risk stratification, ethical dilemmas, the clinical management of COVID-19 patients, which we're going to spend the most amount of time on. The clinical management of emergent, non-COVID-19 patients, the anesthetic management in the OR and discharge planning for those who are blessed enough to make it through these difficult times. One last note is, the intent of this is to share stories and experiences, and though this is not prospective randomized studies, there is still a lot of value that evidence is still being developed. So please make note of this when assessing the content of this lecture. The first section is on hospital capacity management. Dr. Vanni Agnoletti will be speaking about his section and I'll yield the floor to him. Vanni, just be sure to unmute your microphone when you speak.
Vanni Agnoletti: Thank you, Bassam. So we work in a hospital that have 450 beds. Our ICU beds are 17 and we have 18 operating rooms. We started with Covid, this were the 2nd of March, and we are in the middle. We are not in the frontline, but we are close to the front. Usually we treat 300 of patients each day in the emergency department. Today we see 20 patients per day in the emergency department. Half of these patients are Covid positive. The
number of patients is not so high, but all these patients arrived to our hospital. If you consider the number, the total number. Today we have 80 patients in our hospital, Covid. The ratio of ICU patient is 10%, so today we have eight patient Covid in ICU but this is a war and we have received other patients from other cities, so we have 15 patients in ICU. Now we have four patients out of ICU because we treated them and we want to send them back home.

Vanni Agnoletti: The average number of ventilator days are 15-20 and the length of stay in ICU is probably 20 days. We started with one only one room with negative pressure and we use not artificial but a natural pressure, because outside is cold and we didn't know how to create a negative pressure. So we opened the window and the temperature gradient that the air can follow the flow from inside to outside, we didn't know what to do. And today, believe me, it's not a problem, the negative pressure. We don't know how many patients are getting discharged every day because we don't have enough number. Probably one or two per days, I'm talking about Covid positive. We didn't know what to do at the beginning, so we decided to create five more ICU beds far from the normal ICU. So we have 17 beds for Covid patient and five ICU beds for non-Covid patient. We reduced the surgical activity of 80%. We are a level one trauma center and now, believe me, there are no trauma at all. So we can use these five beds for all the city. It's not simple, but we are trying to manage.

Vanni Agnoletti: If I look at me in the back two weeks ago, what is important for me now? For us now is that we don't have a plan for discharging the patient. We thought to put the patient inside of the hospital and today we don't know how to put the patient outside of the hospital. We didn't think about the post ICU. We are trying to create some intensive beds, but believe me, it's not easy. We were not prepared to think about the post Covid patient. Thank you.
Bassam Kadry: So?

Vanni Agnoletti: Bassam, okay? Let's start where we live, and Bergamo isn't high in the big red circle.

<table>
<thead>
<tr>
<th>Region</th>
<th>ICU Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lombardia</td>
<td>19,894</td>
</tr>
<tr>
<td>Emilia-Romagna</td>
<td>5,124</td>
</tr>
<tr>
<td>Veneto</td>
<td>3,484</td>
</tr>
<tr>
<td>Piemonte</td>
<td>2,932</td>
</tr>
<tr>
<td>Marche</td>
<td>1,737</td>
</tr>
<tr>
<td>Toscana</td>
<td>1,482</td>
</tr>
<tr>
<td>Liguria</td>
<td>1,099</td>
</tr>
<tr>
<td>Lazio</td>
<td>823</td>
</tr>
<tr>
<td>Campania</td>
<td>452</td>
</tr>
<tr>
<td>Veneto Giulia</td>
<td>599</td>
</tr>
<tr>
<td>Trento</td>
<td>523</td>
</tr>
<tr>
<td>Puglia</td>
<td>478</td>
</tr>
<tr>
<td>Bolzano</td>
<td>436</td>
</tr>
<tr>
<td>Abruzzo</td>
<td>385</td>
</tr>
<tr>
<td>Sicilia</td>
<td>340</td>
</tr>
<tr>
<td>Umbria</td>
<td>334</td>
</tr>
<tr>
<td>Valle d'Idxia</td>
<td>315</td>
</tr>
<tr>
<td>Sardinia</td>
<td>306</td>
</tr>
<tr>
<td>Calabria</td>
<td>169</td>
</tr>
<tr>
<td>Molise</td>
<td>46</td>
</tr>
<tr>
<td>Basilicata</td>
<td>37</td>
</tr>
</tbody>
</table>

**Q&A**

**Hospital Capacity Management**

Vanni Agnoletti, MD, Head of Anaesthesia and Intensive Care
M. Bufalini Hospital - Cesena
Bassam Kadry: Okay. So Dr. Chu, I think this is a good time to start getting questions from the audience. I'll hand it over to you, Larry.

Larry Chu: Thank you. We are getting some questions in from the audience. I also encourage more of you to ask questions. I also remind you, when you are sending your questions, make sure to select all panelists and attendees when you are typing in your questions. But here's a question that comes from one of our audience members. What characteristics do you use to determine what operating room cases are elective versus urgent to do, during this pandemic period? Many elective cases are still happening right now in the United States. How do you make that decision?

Vanni Agnoletti: We decided to reduce on elective cases and to give priority to oncologic patients. It's not easy. We tried to stay in a period of 30 days, so we tried to give operation to patients in 30 days. For all the surgeons every day, only one operating room can work from eight in the morning to eight in the afternoon.

Larry Chu: I see. And then going back to the period of time before you had the severe influx of patients until today, did you find the number of elective cases, how were they being handled?

Vanni Agnoletti: Can you say again? I didn't hear.

Larry Chu: How are you handling elective cases?

Vanni Agnoletti: Now?

Larry Chu: Yeah, now and in the immediate period before.

Vanni Agnoletti: Okay. Before there was a schedule in cases, for weeks and for months, so we have to respect. Or the surgeon can have a scheduled operating room. For example, general surgery, for elective cases they can use operating room 12 hours a day for five days a week, except one day that they can work only six hours. Now in one week they have only 12 hours for surgical procedures and it's the same for all the surgeons. For example, for ENT surgery, they have for one week only one day of 12 hours. All specialties have only 12 hours per week. Monday for example, general surgery. Tuesday, for example, ENT surgery. Wednesday, breast surgery, and so on.

Larry Chu: Another question. Do you have a dedicated team for managing intubations or airways for COVID-19 patients, and how do you manage with a shortage of PPE?

Vanni Agnoletti: It's a good question. We don't have a dedicated team for COVID intubation. If you need to intubate a patient, every part of my staff, every person, every anesthesiologist can intubate the patient. We follow the guidelines of our hospital, we don't have a specific. And there's my colleague that after will speak about that. I don't remember the second question.
Larry Chu: How are you dealing with the shortage of face masks and personal protective equipment?

Vanni Agnoletti: You know, we are trying to. There's a doctor that after will speak about that, Alessandro Circelli. I can say that we're trying to follow the rules, but it's not easy. Be prepared to manage the fact that you don't have PPE.

Larry Chu: Bassam, I heard you chime in.

Bassam Kadry: Yeah.

Larry Chu: Do you want to move on the presentation or pick some more questions?

Bassam Kadry: Absolutely, I think these are wonderful questions. I think it's actually a perfect segway to the next section of which we're addressing workforce capacity and safety. I think contextualizing the questions to each topic, hopefully we'll be able to get through all of them. At the very end, just as a reminder for everybody, there's going to be an open Q&A for the entire panelists. So the next speaker is Dr. Circelli, who is going to be talking specifically about the last question of safety and workforce capacity. So, Dr. Circelli.

Alessandro Circelli: Hi everyone.

Bassam Kadry: Just a second.
Alessandro Circelli: I'm sorry. I talk about work force capacity and safety and I show how we use PPE. Next one please.

Alessandro Circelli: The first cases of Covid developed in family health teams, in emergency department of several hospitals of Lombardy and Veneto. Then it conquered the whole Italian territory...
Alessandro Circelli: A lot of health care workers were involved in COVID-19. Three days ago, more than 2,600 patients are COVID-19 positive. It's about 8.3% of the total.

Alessandro Circelli: To contrast this war, we have to stop, as my colleague has just said, all the elective surgery, all the elective procedures, like colonoscopy, angiography, and also ambulatory...
outpatients. We continue only emergency surgery, emergency procedures like thrombectomy for stroke, angioembolization for an aneurysm or exsanguinating patient, PTCA etc., And cancer patients. This can reduce virus transmission but can permit a large number of nurses and medical staff that are free for Covid wards and new wards that are creating in this situation.

Alessandro Circelli: This is our personal protective equipment we use. This is me, it's a surgical mask. When we stay in the isolated wards or ICU, away from the patient more than one meters.
Surgical mask
- to stay in the isolated wards or ICU, >1m away from the patients

High level protection mask (N95)
Filtering Face Piece
- Examination of positive patients or when the staff performs operations such as tracheal intubation, tracheotomy, bronchofibroscopy...

FFP2

FFP3

Surgical gowns
- (liquid repellent)

High protective suit
- Bronchofibroscope, oro-tracheal intubation, NIV, ECHO cannulation

2 pair Nitrile gloves

Surgical cap
Alessandro Circelli: When we have to perform operation, invasive procedures, we use high level protection masks FFP2 or FFP3. Surgical gloves is okay if it's a liquid repellent. Two pair of nitrile gloves, surgical cap of course. For invasive procedures, oro-tracheal intubation, also ECMO cannulation or also noninvasive ventilation that can regenerate aerosol. We use high protective suit, and of course surgical boot covers and important, visual shield to

**ITALIAN STYLE!**
protect our eyes. This is three different dress codes, because our lady wants to be different but are safe. This is the Italian style.

Alessandro Circelli: Today we have a PCR test only when we are symptomatic. This is not true in all the Italian regions because that system is a federal organization, so it’s different from my region, from other regions.
Alessandro Circelli: When we’re feeling sick, we have to stay or come back to home with the fever more than 37.5 degrees, 99.5 Fahrenheit, and cough. There is an Italian law in promulgating that 38, that says you have to go back. You can stay at home, but quarantining is a recommended.
Alessandro Circelli: We're running out. The personal protective equipment is a risk. The real risk is a very important problem, because now all the wards demand the PPE and most of their production is in China and India. In our country, a lot of industry start to change production towards masks, gloves, but we need some weeks to see this kind of change. There is not a unique solution. Cyber protection assistant tried to manage supplies, but it's not simple. We have to remember that we have to use all the necessary equipment and we also ask anyone that can help us. For example, private dentists, the clinics that in this moment are closed, they give us some mask.
Alessandro Circelli: What advice I have to give to myself two weeks ago? Two weeks ago, we were looking for ECMO circuit. Really, we found them, but only few people really require extra extracorporeal oxygenation. Nobody know how many, maybe 2-3% of ICU patients. This is not a so big number. It’s a part of that, it’s time and resources consuming and lymphopenia. It’s a problem that you have to pay attention. What we need is mechanical ventilators.

YOU HAVE TO LOOK FOR MECHANICAL VENTILATORS.
TAKE HOME MESSAGES

1. NEED MECHANICAL VENTILATORS

1. PROTECTING THE PROTECTORS: PROTECT YOURSELF TO CONTINUE TO CURE
Alessandro Circelli: So, take home message. The problem is mechanical ventilators and the problem is protecting the protectors. Protect yourself to continue to cure. Good luck to everyone. Thank you very much.

Bassam Kadry: Thank you. Larry, I'll yield the floor to you for collecting questions.

Larry Chu: Okay, great. So we do have some stuff. Going back to the previous question, how are you protecting healthcare workers, doctors, nurses and technologists, from exposure during this pandemic period? And given the high percentage of patients that are coming in for testing at your hospital for COVID-19, are the majority of people wearing a PPE prophylactically at all times?

Alessandro Circelli: Yeah. This time a lot of the normal people and outpatient wear a normal surgical mask. It's standard in our city, but I think all in the Italian territory.

Larry Chu: Our lab has recently looked up some numbers and found about 8% of the cases of COVID-19 in Italy are from healthcare workers. And in cases where PPE is becoming scarce, the number of healthcare workers are getting infected actually is increasing. I'm going to try to get Dr. Amy Price who did the research to give you that exact number. I think that number was 8.3% of total cases. So with that number in mind, when you ran out of PPE, did you find you were able to have work arounds to that, either sanitizing or re-using? If so, what were your work arounds?
Alessandro Circelli: It's a problem because no one at this moment in the ward, I think, have the solution. You have to check for the solution resource, ask friends. Private clinics at this moment are closed, as to dentistry.

Alessandro Circelli: Protezione Civile that is the most important institution in our country have problem at this moment, so I think it's not a simple workaround.

Larry Chu: All right. Bassam, would this be a good time to move on to the next section?

Bassam Kadry: Yeah, I think so. Let's ... So, this section, we're going to be discussing many of the ethical dilemmas and challenges that they're facing. Dr. Emanuele Russo will be speaking about this section, so I'll yield the floor to Dr. Russo.
Emanuele Russo: Okay. Hi, everybody. First question is [inaudible 00:34:55] topics. In Italy, there's an active debate about it. As Dr. Circelli already told you, in Italy, we have a central Department of Health and 20 different district department, one for each region. And as the outbreak is not the same in the different region, we have different decision by the local government because of course, if we should live in quarantine, all the asymptomatic people, it should be better because now it's clear that the main source of the outbreak of the infection is asymptomatic people. COVID disease asymptomatic in half of the cases. But in some region, if we live in quarantine, all the asymptomatic but infected member of the staff, the health system is in danger of collapsing. So I think that there's no question and answer, but the answer is in the number of the infected people for each hospital or region.

Emanuele Russo: Okay. Question number two and three, I think we have the same answer. On the 6th of March, the Italian society for intensive care, anesthesia and pain medicine has published some guidelines. Very interesting because the COVID disease is considered as disaster medicine. Okay? We are not used to reason in terms of disaster medicine. Disaster medicine means that there is an imbalance between the resources and needs. And so the priority is for patients who are most likely to survive. And so, the answer question number three is, we give priority to patient who are most likely to survive. And the answer question number two is the same. I think the healthcare provider maybe has a good chance of surviving because he's not old and if he works, I think he is in good health. Okay. So, I give him priority if he has good chance to survive.

Emanuele Russo: Okay. Number four, we don’t have an ethics team. We have an ethics committee, but it doesn't mind about this question. We have two important meeting last year with the old

Emanuele Russo: Okay. Number four, we don’t have an ethics team. We have an ethics committee, but it doesn't mind about this question. We have two important meeting last year with the old
member of the staff, doctor and the nurses. It was very, very important because in Italy,
the medical guilty could be even a crime, and so we learn to distinguish between ethics
and law, and I think those meeting was very important for us and we will do some more
again. Okay. Number five, in Italy, intensive care, palliative care and anesthesiology is the
same master class, master specialization. So, avoid respiratory stress for early death is
our first goal. And for Italian rules, we are used to give sedative to all the patient suffering
and even if giving some drugs could shorten the life, but avoiding suffer, the first goal is
avoiding the suffering. This is clear for all the patients, COVID or no COVID.

Emanuele Russo: How are you managing family visits? Unfortunately we have a national law, it does not
allow at all family visit, even in the end of life scenario. This is the opposite what we do
usually and I think that is a source of emotional distress, very important for the physician.
So far, we haven't had any death in our intensive care, but all the physician that had
deaths in their department told us that one of the worst experience is people living alone.
We are not used to this and I don't like it. Okay. Bodies are managed as if no COVID, the
same treatment at all. Nothing different. What advice I can give you? So far as Dr.
Agnoletti told you, we are very close to the front line, but so far we have not imbalance
between needs and resources. I think that the only advice I can give you is to improve all
the resources, it means mechanical ventilator, beds and even drugs. We're now close to
have problem with anesthetic drugs and so I think that the advice is improving all the
resource and if we have not imbalance, we have not ethical challenges. Thank you. I'm
here for some question.
Bassam Kadry: Yeah, I'll ask one question and then I'll hand it to Dr. Chu. A question that keeps coming up is about the limitation of events and the prioritization of that. I'm sure the ethics of managing that ... Can you just walk us through the process of how you prioritize your events and then are you running into vent supply issues? And then after this, Larry, I'll let you go on with the next questions.

Emanuele Russo: Okay. It's not yet happening. Okay? And this is the main question. Of course the priority is for the patient who has the main chance. In guidelines, there's an important question. The rules, first come, first serve is not valid. Okay. If we have finished the ventilator and we have a patient ventilated with a less chance than the new one arriving, we will ... okay, by the Italian recommendation actually, I think that the new patient with the more chance needs the ventilator and we'll sealing the care to the old one maybe with less chance than the new one.

Bassam Kadry: Larry, do you have other questions that you've collected? Very challenging issues.

Larry Chu: Yeah, we do have questions. So, a couple questions pertinent to this topic on ethical challenges. How are you ensuring patients with disabilities are not discriminated against?

Emanuele Russo: Okay. I think that there's not discrimination but maybe they have less chance to survive to the disease. Okay? This is the question, not discrimination. Okay?

Larry Chu: Can you talk a little bit about how you're dealing with that right now, managing that, or how you make decisions around that?

Emanuele Russo: Okay. Is not the same for the same. If he has the chance to survive, I will give him mechanical ventilation, ICU care. If he has less chance to survive, I don't give him. And as I told before you, disability is not the main question. It's chance of survive. It just is. Okay?

Larry Chu: All right. Moving onto another question. Are patients that are for into cardiac arrest from respiratory complaints prehospital worked or has the decision been made to not work on these patients?

Emanuele Russo: Okay. We usually have a briefing every day and we have a discussion about all the cases. Okay? We usually ... Maybe you want an anesthesiologist, an intensivist visit the patients and after we talk with the colleagues and we if ... the case is not easy, we have a collegial decision.

Larry Chu: Okay. And then do we have time for one more, Bassam, or should we move on?

Bassam Kadry: No, no. If they have a good question, by all means, go ahead. This is a very difficult topic.

Larry Chu: Okay, one last question. Was there discussion about ethics for the ambulance before the patients arrive to the hospital?
Emanuele Russo: Okay. Okay, yes. Outside the hospital, there's a protocol. Okay? And about until now in our region, we have not this problem. Okay? The ambulance bring the patient to the emergency room and then he can be a new ... He can receive a new evaluation. In other regions, they have a protocol for the out-of-hospital patients. We don't have till now because so far we don't have this problem of imbalance.

Larry Chu: Okay. Now I'll hand it back to you, Bassam.

Bassam Kadry: Okay, thank you. This next section, we're going to be spending more time on the clinical management of COVID-19 patients. Our speaker would be Dr. Emiliano Gamberini, and I'll yield the floor to you, Emiliano.
Clinical Management of COVID-19 Patients (20 Min)
Emiliano Gamberini, MD

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Mild symptoms &amp; No Pneumonia</td>
</tr>
<tr>
<td>Moderate</td>
<td>Fever, URI Symptoms, and Pneumonia</td>
</tr>
<tr>
<td>Severe</td>
<td>Sat &lt;93%, RR&gt;30, PaO2/FiO2 &lt;300mmHg, 50% lesion progression</td>
</tr>
<tr>
<td>Critical-Early</td>
<td>Respiratory compliance &gt;30mL/cmH2O, No other organ failure besides lungs</td>
</tr>
<tr>
<td>Critical-Middle</td>
<td>Respiratory compliance 15-30mL/cmH2O</td>
</tr>
<tr>
<td>Critical-Late</td>
<td>Respiratory compliance &lt;15/cmH2O, and failure of other organs systems</td>
</tr>
</tbody>
</table>

1. At what stage are you using each of these interventions? Dosages? Side Effects?
   - Anti-Viral Therapy?
   - Anti-malarial? Hydroxychloroquine
   - Interferon Alpha2B?
2. Ventilation Management Strategies?
3. Hemodynamic Management Strategies?
4. What other interventions are being used?
   - Convalescent Plasma Therapy
   - ECMO
5. What advice do you have?
6. Q&A

Emiliano Gamberini: Hello, everyone. So, we are speaking about medical and clinical management of COVID-19 patient and we will starting by saying something about the clinical diagnosis. And so diagnostic criteria are usually the clinical history, which is very common in this patient.
Emiliano Gamberini: We have symptom starting about one week before the patient get very sick and ask for hospitalization, and usually initial symptoms are cough and a fever. This period of one week is quite repeated in patients we have seen.
Emiliano Gamberini: So as the diagnostic criteria, we use pharyngeal swab, but we have seen a lot of false negative results and so probably is better perform a deep sample in a deep respiratory sample like a bronchoalveolar lavage. As I have done these slides yesterday evening, I haven’t seen yet the new guidelines for COVID-19 treatment which was published on the intensive care medicine I think today where they say that it's better to perform a normal bronchial sample, better than bronchoalveolar lavage perhaps because it easier to get some aerosolized and get contaminated with the bronchoalveolar lavage. So if the patient is intubated and if they have a CT scan that is very similar to the COVID-19, we always repeat the swab by a deep sample by the trachea and bronchi, even if the pharyngeal swab is negative, because these large amount of false negatives.

Emiliano Gamberini: And so about CT scan, I think that maybe Professor Venerino Poletti can say something more because he's a great expert about imaging and lung imaging. But I think that there are two patterns which are very common with the one. The first one is the ground glass, especially a peripheral ground glass. And then there is another form, which is a little bit which have more consolidative aspect and it looks like even more something about an organizing pneumonia. And we found that the sickest patient have this last pattern, the organizing pneumonia, and looking for his history, we have found that this kind of factor always is expressed in patients who have been dyspneic and fighting for breathing for long days. And so this can be an aspect about the diagnosis.
Emiliano Gamberini: So, speaking about ventilation management, I have to say something about a non-invasive ventilation. And so we prefer using CPAP and especially we use helmet CPAP because it's easier to limit air leak by the interface where you use the CPAP and with the non-invasive ventilation. And if we can, we have only one room with negative pressure, and we have two room, two single boxes, for ... which is a single box with only one patient, and all the other ICU is an open space, it has an open space organization. So, we prefer to use a non-invasive ventilation in single rooms, in the single boxes, to limit spreading of aerosol and so. Why CPAP? Helmet CPAP we think is better than non-invasive VPAP with mask, and so as to limit air leaks and even to get an easier way to understand if the patient is going well with non-invasive ventilation. Because I think that it's quite difficult to synchronize with the VPAP, to synchronize a sick patient as COVID-19 patients are with a VPAP.
Ventilation Management

- non invasive ventilation with CPAP
- lung protective strategy for invasive ventilation
- prone position
- esophageal pressure
- early tracheostomy

Emiliano Gamberini: So, probably the best non-invasive approach is the CPAP and then you have to be very fast to convert into invasive ventilation if the CPAP doesn't get your target, which are oxygen saturation over 95 and a respiratory rate over 25. When we intubate the patient, we keep on with lung protective strategy. So can we go ... I want show this video if it works. If not, I can try to share my screen if you want.

Bassam Kadry: Mike, can you ... I'm going to stop sharing the screen and if you could share yours, that would be great.

Emiliano Gamberini: Okay, I will share my screen.

Bassam Kadry: Okay. Okay, go ahead.
Emiliano Gamberini: Just a moment. And so I want to show you a video which demonstrates how important it is to have good flow on the CPAP to be sure to give something good for patients. I'm starting to select and I try to share what I want to show you. And so as you can see, to gain as high flow, we are using two systems connected together. It's a mechanical CPAP system. It's quite old and out of production, but we use with the satisfaction connected with a high flow oxygen by the mechanical ventilator. Together we connect with a [inaudible 00:53:25] on the Y tube to the humidifier. And then we get to the helmet. As you can see, we are monitoring the pressure inside the helmet with a normal transducer, which is not filled by water, but is filled only with air, so that we can realize if the pressure is really continues and if it's not, this means that we need to increase our flow.
Emiliano Gamberini: So, I come back to presentation. No. Okay. So, I need to come back to the presentation. Okay. Sorry for this delay. So, when we go to invasive ventilation, we always need to set up for lung protective ventilation strategy. Proposition is highly indicated if you can reach a PaO2/FiO2 ratio over 100 with a high PEEP, 15 or more PEEP. And maybe in some patient, especially in obese patient, we need to monitor esophageal pressure to try to discriminate because between problems in compliance of the lung or problem in compliance with the chest wall. So, speaking about lung protective ventilation, the principle of lung protective ventilation are using a low tidal volume. And so we use a ... If the tidal volume of six millimeter per kilo of body weight, taking into account that you need to think about ideal body weight and not real body weight, because we have a lot of obese patient and especially young patient, women, are obese. This is an epidemiological feature that we can take into account.
Lung Protective Ventilation

- Vt 6ml/kg ibw
- Pplat < 30mbar
- driving pressure < 15mbar
- RR to pH > 7.25
- PEEP to P/F > 150
- FiO2 to PaO2 55-80mmHg

Emiliano Gamberini: We need to set the ventilator to keep a plateau pressure below 30 milliliters, 30 centimeter of water, driving pressure between 15 respiratory rate to get a pH of 7.25, allowing hypercarbia which can be considered permissive hypercarbia. We titrate PEEP to get a PaO2/FiO2 ratio over 150 and we titrate I feel to gain PaO2 of 55.18. Proposition is another thing that can be very useful. And I try to share again my video to show you something.

Bassam Kadry: Okay.

Emiliano Gamberini: Are you seeing the video?

Bassam Kadry: Not yet.


Bassam Kadry: Oh, yes.

Emiliano Gamberini: Is not what I want to show you. Sorry for these difficulties, but I'm sharing the wrong one. So, I can't do it. And so maybe it's better to go on.

Bassam Kadry: Oh, you want to move on? Okay.
Emiliano Gamberini: Yeah, we move on because ... Let's go back to the presentation. Okay, I can't see the presentation anymore. So another thing, we are proning patient. Go back a little bit. We are proning patient and we need to schedule the proposition because it's quite a hard workload for all the staff. And so, we are proning at the changes of the shift, of the shift of nurses. So usually, they prone patient in the morning and then we prone other patient again in the afternoon shift. And usually, we get the pronation and other pronation in the other shift changes at the evening shift. We have since now pronate about nine patient and two of them were pronated four times. And so it's a quite important workload.
Emiliano Gamberini: So, going back a little bit or a more dynamic management, obviously you need to have a strategy. We need to use a sometimes vasopressor even because some of the patient are blockade, are paralyzed, and so we need a deep sedation. We have seen that we have problem with the ScvO2 too because it’s quite difficult to interpret in this patient. Some patients develop a pump failure. About ScvO2, we have seen strange things, we found very high levels of ScvO2 in the early stages of the illness until almost 90 of ScvO2, even in patient were hypoxemic and with high PEEP. Usually these ScvO2 get normal when the patient is a little bit better, so ScvO2 is working on the opposite way as it done in other patients. It is a strange thing for these patients.
Medication Management

- ketamine as sedative
- antivirals and idrossiclorochine
- tocilizumab and corticosteroids
- specific artificial nutrition

Emiliano Gamberini: Speaking about medications, about antivir: hydroxychloroquine, tocilizumab, corticosteroid, Professor Venerino Poletti, we spoke about it and we are using ketamine as sedative drugs because of the last more dynamic impairment we can have with this sedative. And speaking about other medication which we think it's important is some specific issue about artificial nutrition.
Emiliano Gamberini: Speaking about ketamine, we think that ketamine has great advantages as a sedative drug because even a bronchodilation effect, we can reduce the need for fluids and vasopressor because it's known that it impairs the dynamics less than other hypnotic and other sedative agents. Remember that if you use continuous infusion of ketamine and one to four milligram per kilo for minute, sorry, I... There is a [inaudible 01:02:28] in the slide. It's one to four milligrams, not microgram, per kilo per hour. Sorry for this problem. Remember not to use BIS with the ketamine because it can't be detected, the deepness of anesthesia when BIS using ketamine.
Emiliano Gamberini: About nutritional target, we use a quite not so high caloric intake because we have hypoxemic patient and we have often problem with hypercarbia, and so we prefer enteral nutrition. Enteral products with an inverted ratio from lipids and carbohydrates, and we target two grams per kilo DA of proteins. We know that is a quite high target. European artificial nutrition association indicates as a target 1.3, but while American guidelines are a little bit more prone to consider the higher protein intake, I think that the incidence of obesity in these patient and the quantity of corticosteroid we give, and neuromuscular blockers, make the problem of losing muscular tone. And so we decided to target our nutritional intake to two gram per kilo DAs of proteins, and omega-3 are considered as a supplementation.
Emiliano Gamberini: So, other problems is we are seeing some ventilator associated pneumonia about seven to 10 days. We are seeing a lot of central venous catheter related blood stream infection. Probably this is due to the fact that it's quite hard to protect themselves and protect even the patient by cross-transmission. This is a very important issue, I think, because it's quite difficult to use all the attention we use for the patient when ... before the COVID pandemic. Another things that it's quite strange to ... not strange, but we need to take note of this is that immuno-suppressed patient rarely are affected by severe forms. Just assuming the fact that probably the most part of this illness is due to the immune response and not by the viral activity maybe. Another thing that we can say is that there is a quite high incidence of severe myocarditis leading even to cardiac arrest and to severe pump failure. And we have seen two patient over 21 we treated, so probably the incidence is about 10% of severe patient that are treated in the ICU. Thank you very much.

Bassam Kadry: What I'm actually going to do is I'm going to ... Dr. Poletti's got the second section of the clinical management and there's a lot of good questions that are being asked. So I'm going to have him continue and then open the floor to questions to both doctors. So, Dr. Poletti?

Venerino Poletti: Hi. May you hear me?

Bassam Kadry: Yes. I can hear you.
Venerino Poletti: Good morning. It's a very unpleasant and difficult time, but you know, we are fighting a very difficult battle against [inaudible 01:06:57]. May I have the first slide? This is about treatment. We use ... It's very good, got it.

**TREATMENT STRATEGY**

- Paracetamole
- Steroids
- Tocilizumab (two shots)
- Kanakinumab(?)
- JAK Inhibitors (Baricitinib, Tofacitinib, Upadacitinib...)?
- .................

- Inhibitors of viral replication (Lopinavir/Ritonavir)(Hydroxychloroquine) Remdesivir

- Mantain O2 level
- NIV; Mechanical Ventilation

Venerino Poletti: We use inhibitors, so viral replication, lopinavir and the ritonavir, they are anti protease drugs usually used in HIV patients for HIV virus. And there is an ongoing trial, not start yet, really started in Italy or started only in a few center with remdesivir. It's a nucleotide analog used in Ebola virus and in other RNA-viruses, and I think it could be very promising. The important strategy is when you need to use some clues indicating that this pneumonia may be sustained by immune, hyperimmune reaction. And in fact by a two-step profile. The fever, myalgia, asthenia for seven to ten days, and a subset of them develop respiratory failure seven, ten days later. Probably when acquired immunity starts to work.

Venerino Poletti: And in this context ... And also we know that from the laboratory point of view there is an increase of inflammatory cytokines, mainly interleukin-6. And the use of tocilizumab is a monoclonal antibody against interleukin-6 receptor used in rheumatoid arthritis, was used in China and now in Italy.

Venerino Poletti: And with this drug and with preliminary good data. There is an ongoing trial, observational trial and phase two trial started one day ago with these drugs.

Venerino Poletti: And the other big point is, do you use steroids or not? We have some data that are against the use of steroids, but these data are not so strong. And in this context, when we have a
rapidly progressing respiratory failure, we tend to use steroids, 30 milligrams twice a day, some [inaudible 01:09:41] alone.

Venerino Poletti: So this is all about treatment strategy from the clinical point of view.

Bassam Kadry: Okay. So Dr Chu, I'm going to hand the floor back to you. There's a lot of great questions, so if you want to go ahead.

Larry Chu: Yeah, we've had a vibrant discussion, during both excellent talks, thank you both. And I will just begin, because we have so many questions. I'll start by asking a question that is on the top of everyone's mind, which is what have you noticed in general for your patients about the timeline between the onset of symptoms and the need for mechanical ventilation?

Venerino Poletti: So the time that is between the starting of symptoms and the appearance of acute respiratory failure, is it correct?

Larry Chu: Yes.

Venerino Poletti: I think that we have, the time is about 10 days after the onset of fever, dry cough, myalgia and asthenia. So we have a period in which the respiratory failure is not present, and it appears later.
Larry Chu: Do you use a symptom severity score, or other metric, for determining how critical a patient is, in order to help with triage or to allocate resources?

Venerino Poletti: I will discuss later with choices like this question. So I will answer later.

Larry Chu: All right. Another question that's been on the top of a lot of people's minds, have you been ventilating more than one patient using the same ventilator? Many people have seen this described, but have no experience.

Emiliano Gamberini: So I can answer, Venerino, if you want.

Venerino Poletti: Yes, please. Up to you.

Emiliano Gamberini: So we are hearing something about this in the last days. We know that during SARS pandemics in some setting, someone did it. I think that you can do it with dedicated respiratory circuit, which is not so simple to provide it. But you can do it. But I think that it can be...It can be only very problem when you have no more resources. So as Emanuele said before, fortunately we have not this problem yet. We hear that someone is thinking about this. But I have some problem with this, because you have to choose patients who are quite similar in his soma. Because I think it's quite difficult to think of ventilating a patient of 50 kilograms or 100 kilograms in the same way.

Emiliano Gamberini: And probably if you have to do it, the best option is pressure-controlled ventilation, which is probably less harmful than volume-control ventilation if you have two patients ventilated with the same ventilator. But I hope never to do it.

Larry Chu: Okay. Next question. How are you handling emergent airway management? Specifically, how are you pre-oxygenating given the limitations on flow, and concerns over mask leaking? We've had significantly decreased safe apnea times given changes to our airway protocols.

Emiliano Gamberini: So I think that Giovanni Scognamilio will speak about this topic later. But we use pre-oxygenation with high-flow oxygen, or with a face mask with a reservoir. And we use rapid cycles intubation. But I think that Giovanni will speak about this topic later.

Larry Chu: What are the criteria you have used for ECMO candidacy? And how many patients have you placed on ECMO, and how many have survived?

Venerino Poletti: So we haven't placed a patient on ECMO yet. We treat 21 patients, we consider the ECMO for two of them. But after the fourth cycle of pronation, their PO2/VO2 ratio now is over 100, without proning anymore, and with a peak level below 15. So I think that you have to consider ECMO for this patient, but you have to be sure to have done everything you can do with your ventilation strategy before to perform it.

Venerino Poletti: Another issue for ECMO is, veno-arterial ECMO, in cases of severe myocarditis, or in case of cardiac arrest, which is a topic. And I know in another hospital in Italy, they have two
patient of VA ECMO for this problem, of pump failure due to myocarditis, and not VV ECMO. Because I think that those lungs are not so difficult to ventilate, and probably this illness will go a little bit better with mechanical ventilation, taking a little bit of time and do everything you can do with the mechanical ventilation.

Venerino Poletti: But maybe Alessandro Circelli can say something more about ECMO.

Larry Chu: Okay. I’m going to end with two questions, each on sub-specialty anesthesia. The first about obstetric patients. What is your PPE, personal protective equipment, protocol for obstetric patients. Specifically those receiving labor epidurals, versus having to convert to general anesthesia during C-section?

Venerino Poletti: So I think that it’s better that Vanni Agnoletti will answer this question. We are, if the conversion from anesthesia for local regional anesthesia to general anesthesia is an emergent indication, we use the same issue we use in hospital emergency system.

Venerino Poletti: So in case of suspected or certain case of COVID-19, we use all the protection to perform tracheal intubation.

Larry Chu: Okay. And then I know that we have more to go, so we’ll wrap up now, and ask other questions later. But this last question, for pediatric patients. Is it true that pediatric patients are less affected by COVID-19? Are you routinely testing all pediatric patients, even asymptomatic patients?

Venerino Poletti: No, we are not testing pediatric patient routinely. And it’s true that they are significantly less affected, and the disease is quite mild, and can be more an enteritis instead of a pulmonary disease.

Venerino Poletti: And in fact the problem for children is that the virus is more frequently found in the feces instead of the nasal swab. So they can be distributors, or spread [inaudible 01:19:02] they are not routinely affected, not evenly affected and routinely screened for Sars-cov 2 so far.

Larry Chu: Okay, Bassam, I’ll hand it back to you.
Bassam Kadry: Okay. The next section is clinical management of non-COVID-19 patients, obviously that are emergent. It is a hospital, there are other patients who may be unfortunately experiencing a stroke or a heart attack. So Dr. Luca Ansaloni, as one of the surgeons, will be sharing his experience with this.

Luca Ansaloni: Okay? Did you hear me, it's fine?

Bassam Kadry: Yes.
Luca Ansaloni: Yes, thank you. So I have not prepared slides, but I have sent to Bassam a couple of [inaudible 01:20:13] draft of two articles, two editorials, that will be very soon published on World Journal of Emergency Surgery, regarding two topics. One topic is how to manage an epidemic like this by the system, by the hospital system, the health system. And the second one is which advices we can have in order to treat patients when they go to theater for a different situation that is not COVID-19.

Luca Ansaloni: So according to the first topic, Bassam can share those draft already to everybody that want to know that, want to read that. Is that what we are facing actually is like a mass casualty, that every day is medium, mass casualty, that brings some patient to our hospital. So it's not like the usual mass casualty where you have just one hit, but every day you have a hit. And you increase the number of patients that are coming to the hospital.

Luca Ansaloni: What you are looking in your ICU is just the top of the iceberg. And a huge part of the effort of the health system is to manage the patient before reaching there. Because they entering in the casualty. You have to make the diagnosis, trying to divide patients that are dirty with COVID-1, and those that are not.

Luca Ansaloni: And actually you need some wards where you have to put patients waiting for the test, or waiting to be placed in the COVID-1 are, ICU, or less complicated patient, with the COVID ... If they are COVID-19 positive.

Clinical Management of Non-COVID-19 but Emergent/Urgent Procedures (Stroke, Heart Attack, Infection Delivery)
Luca Ansaloni, MD

1. How are you managing elective surgical procedures? (e.g., Total Knee Replacement)
2. How are you managing oncological surgeries?
3. Have you closed ambulatory clinics?
4. Do you have operating room theaters dedicated to COVID-19 vs Non-COVID-19?
5. Are you running into blood bank challenges?
6. Do you treat each patient as being a carrier of COVID-19 even if they don't exhibit symptoms?
7. Have you converted ORs into ICUs? What challenges have you faced in doing so?
8. What advice do you wish you could have given yourself two weeks ago to manage emergent non-COVID patients?
9. Question and Answer
Luca Ansaloni: So actually, you are facing really everybody that will be involved in a mass casualty like this, he has to plan for an everyday mass casualty that will last for at least, regarding what we know, a couple of months. With a peak that will be in the middle of that.

Luca Ansaloni: So for sure, you will have a lot of effort to be put on the entrance of the patient and of the exit of the patient. Actually, our main, the vast majority of our hospital in Italy, they don't have a mass casualty plan. So what the hospital, the only advice that I can give to somebody else is to review the mass casualty plan of every hospital in order to afford a medium mass casualty that will last for at least two months.

Luca Ansaloni: Second thing is regarding what we do for the harder surgical procedure that they have to go to theater. The good news is that we are seeing that all the other emergency, they are reducing. For example in Italy, we have stopped the people inside the house, so we are not seeing any more trauma. Because the vast majority of our trauma, they are from vehicle collision.

Luca Ansaloni: So in this case, for example, we have seen that our system is less under stress for the usual situation. Other thing that we can do is just to cancel all the elective procedures, as Vanni was telling before, that they are not urgent or emergent.

Luca Ansaloni: What you can do is to avoid to do oncologic surgeries that they will go to deteriorate in one month. So most probably you need to do those surgeries, and we are doing that actually.

Luca Ansaloni: How to manage the patient? For sure, if you are aware that the patient is positive, or he has a disease, for example is coming from the ICU, from the COVID area ICU, you should manage the patient, and you need to bring him or her to theater for another surgery, you need absolutely to take all the third level protections for the people involved in that surgery.

Luca Ansaloni: What to do for patients that they are coming for an emergency situation, and they are not symptomatic, or for those elective patients, that they have an oncologic problem, and you need to operate on them. In that case, according to me and according to what we have done now, we are taking, for the anesthetist and the nurse that is used, is helping the anesthetist, the third level personal protection level.

Luca Ansaloni: For the other one, when the patient is ventilated and is in ... the other one, they are not in danger, and they don't have a risk of contamination, we just take the usual protection that we take usually in any emergency surgery in theater.

Luca Ansaloni: I don't know if I answer to the question that you did to me. Next, to answer to the eight question. What advice I wish you could have given to myself two weeks ago to manage emergent non-COVID patient.
Luca Ansaloni: Actually, according to the first topic, we were not prepared to the mass casualty. This is the problem. So actually what is my advice is for hospital that they should afford this kind of problem, is to really to review the mass casualty protocol.

Luca Ansaloni: Second one instead is how to manage the patient in theater. For sure, even there we don't have a particular protocol for those patients, we need ... Or those hospital that they will afford this kind of patient, they should look after to have a protocol in theater, maybe one idea can be to have theater only for COVID-19 patient, and other one for suspect, or for asymptomatic patient. Thank you very much.

Bassam Kadry: Okay. We have some questions.

Larry Chu: Yes we do, we have quite a few questions coming in. So one question is regarding scheduling and therefore canceling of elective surgeries. Looking back at your experience now, what would that window look like? Would you be looking to cancel elective surgeries several weeks out? Are you looking at several months out? What does that window look like?

Luca Ansaloni: Actually, according to what is my experience in this moment, you should consider at least a couple of months before ... I mean we have not canceled the patient, we keep the patient on the list, and we tell that them they should postpone the surgery for at least a couple of months.
Larry Chu: All right, the next question. For the elective or urgent procedures you’re doing, are you using full PPE, given the high rate of community transmissions and the fact that there’s aerosolization of the virus during airway management?

Luca Ansaloni: Not for all the patient, actually. Only for those patients that they are positive. I try to tell you what has happened yesterday.

Luca Ansaloni: We have a patient with a [inaudible 01:31:35], and with the abscess in a psoas in the right psoas muscle. In the lady that has developed a sepsis due to this, we have tried to make just a drainage without opening her. And the drainage was not enough, she’s still on fever.

Luca Ansaloni: So yesterday we planned for surgery. The patient is in hospital still since 15 days ago. Actually two days ago, and she was in a medical department. And two days ago they decided that because she has fever, to test her. And when we reached theater, the result of the test was still not out. So we decided, because it was not so emergent, their situation, in order to drain the abscess, and she can wait at least a couple of days, to wait for the test.

Luca Ansaloni: Today the test was negative. So most probably we are going to make a procedure tomorrow. I don’t know if I answered to your question with this example.

Larry Chu: Right. So I think the question that many of us have is, that there is a shortage of PPE, and therefore we are wondering if the use of full PPE is always done if you do not know what the status is of the patient.

Luca Ansaloni: No. We do. We wear full PPE only for patient that are positive, and they are sick for COVID-19. We are just taking the usual protection for theater for all the other patient.

Larry Chu: Okay. I’ll move on to the next question. Are you continuing with transplant surgeries?

Luca Ansaloni: We are not in a transplant hospital, but I know that my colleagues, for example in Bologna nearby, they do.

Larry Chu: What would the panelists advise to approach all elective, urgent and emergent cases, if a patient in non-tested and even asymptomatic patients ... Sorry, would you advise us to approach all elective, emergent and urgent cases in non-tested and even asymptomatic patients, as if they were COVID-19 positive?

Larry Chu: I will preface this by saying that in the United States our testing currently is probably not as accessible. We are not able to run as many tests as other countries.

Luca Ansaloni: Actually, first of all regarding testing, being involved in the screening of the patient, in at least 20% of the patients, that they have a CT scan positive, is test negative. So even doing a diffuse testing for a symptomatic patient, I don’t think that there is a rationale, to do that, to decide which patient is to go to theater and which kind of protection you should use. First of all.
Luca Ansaloni: Second thing is that, actually the question that you are doing now is just the reverse of the question of before. We don't have enough protection for all the patient, for the personnel doing all the patients that are coming to our theater in this moment. So the only thing to reduce the risk is to reduce the number of surgery that you are doing, to take protection for the patient that are truly and for sure positive, and to do our best for those patients that should have emergent surgery or oncologic urgent surgery, elective surgery.

Larry Chu: Thank you. Next question. Are cardiac surgeries being performed, and if so which types of cardiac surgery?

Luca Ansaloni: I don't have data. I don't have data, because actually our hospital is not a hospital that does heart surgery. According to what I know, even for what the other colleagues are telling me, they tried to reduce as much as possible the surgery. They do only those surgeries that they are for sure, you should do absolutely because the patient is not [inaudible 01:37:51] for that surgery.

Luca Ansaloni: But really, we are not a hospital with a heart surgery available, so I cannot tell you in which size the cardiac surgery is still done in Italy.

Larry Chu: Okay. Maybe time for one last question. If you know, you may not know how this is done, but how have you managed cleaning of the rooms in the ED or the CT scanner, or the operating room, after a PUI is passed through? And what about unknown asymptomatic patients?

Luca Ansaloni: Okay, actually normally the disease is a droplet and contact ... The risk is due to droplet and contact. So the usual cleaning of the theater normally it should be enough to clean everything on the contact and on the area that they were, at least in theater, that most probably they were contaminated.

Luca Ansaloni: So a deep cleaning of the theater should be enough. On the CT scan, actually I don't know if there is any protocol for taking any particular ... I mean if you take any particular precaution in order to clean the CT scan. But I will try to have an idea tomorrow.

Larry Chu: All right, thank you so much. Back to you, Bassam.
Anesthetic Management of Patients in the Operating Room

Giovanni Scognamiglio MD, Critical Care Intensivist
Intensive Care and Anaesthesia Department, Bufalini Hospital

Bassam Kadry: All right. Just to explain to everyone, we have two sections left. One is anesthetic management of patients in the operating room.

Giovanni Scognamiglio: Hi everybody, what's up?

Bassam Kadry: And then the second is going to be discharge planning. So Dr Giovanni, the session is yours.
Anesthetic Management of Patients in the Operating Room
Giovanni Scognamiglio, MD

1. Can you walk us through the process of how you prepare yourself and the room to get ready for COVID-19 patient? Specifically, what are you doing differently?
2. How have you changed your intubation technique in patients with COVID-19?
3. Do you have adequate HEPA filters? If not, what have you done?
4. What percent of patients with COVID-19 patients in ICU need surgery?
5. Do you change the water trap each case?
6. Do you have enough Personal Protective Equipment for Staff? If not, what are you doing?
7. What advice do you wish you could have given yourself two weeks ago to best prepare Operating Rooms for this crisis?
8. Question and Answer

Giovanni Scognamiglio: ... airway management, and I will tell you about it. Please next. Next.
Giovanni Scognamiglio: Okay. I hereby reported the guidelines by the Italian Society of Anesthesiology and Intensive Care, as we have to minimize the exposure and the aerosolization of the virus, we have to consider early intubation.
Giovanni Scognamiglio: Of course, when dealing with the airway of a positive COVID patient, you have to wear your PPE. As Alessandro earlier stated, the PPEs are high protection certified masks, with N95 or FP3, Foxtrot Papa three. A face shield, a waterproof gown, and two pairs of gloves. Always remember to wear two pairs of gloves, because every time you touch a contaminated surface, you have to take off the outer layer, so it is very important.

Giovanni Scognamiglio: If you have a negative pressure room, intubation should take place there. If not, if it is not available, just shut down the door and don't let unnecessary people inside the room.

Giovanni Scognamiglio: That's one of the techniques. The rapid sequence intubation is quite advisable because you have to minimize the droplets in the air in the environment. If you have a video laryngoscopy, it should be used because it limits your proximity to the airway. Of course, put a bacteria filter on your circuit or on any oxygenation interface.

Giovanni Scognamiglio: How do we pre-oxygenate these patients? A high flow oxygen should be avoided above 10 liters because above 10 liters there is aerosolization, so keep a reservoir mask with a flow oxygen below 10 liters. Let the patient breathe spontaneously and then go on. As I said earlier, don't allow non-critical staff in the room. Do not bag the patient, never bag-mask the patient because it can be very dangerous for you, and only the most qualified and skilled physician should perform the intubation.

Giovanni Scognamiglio: After intubating the patient, avoid disconnect the circuit. If you have to, always remember to clamp the endotracheal tube, stand by your vent, and after, disconnect the circuit. After the surgery, don't bring your PPE outside the room because it could be kind of...
dangerous. Somebody asked earlier about obstetrics. Well, if the patient has a respiratory impairment, I think it’s advisable to go with the tube. The tube is not a big deal, so intubate the patient. If the patient has not pulmonary impairment, you can try a central block like epidural or spinal.

Giovanni Scognamiglio: Next, as for the equipment, always keep in mind to have your PPE always on. Prepare all of the equipment you will need on a trolley, a bacterial filter on every interface, and this is very important, a closed suction circuit. Actually, you won’t have to suction or your patient because these patients have very little secretions, so these will not be necessary. But if you have to, make sure you have a close suction circuit. As for the technique, as stated earlier, a modified rapid sequence intubation. A weak intubation is not advisable because it can take time, and you have to be kind of skilled with the fiberscopy. Avoid bag-mask ventilation, and above all wait until your cath is on to ventilate.
Giovanni Scognamiglio: Next. Okay, drugs. Emiliano stated earlier that many patients have hemodynamic derangement. We don't know why yet. This might be due to a viral marker, myocarditis. So we choose to use the ketamine, which has a minor and more dynamic impact. Also, consider that many patients have a lot of comorbidities. They are obese, so ketamine can be the right hypnotic drug. As neuromuscular blockers we use suxamethonium or rocuronium. Use a higher dose because you have to ensure an optimal relaxation to intubate your patient in less time as possible and avoid him coughing. As for maintenance, we use our total intravenous anesthesia, and I would suggest to avoid the desflurane because it has an airway irritability effect. Next, please.
Giovanni Scognamiglio: How do I ventilate with a COVID patient? They have a very compliant lung, so they are very good PPE responders. Set a lung protective ventilation six millimeters per kilo of IDL body weight. Set a high PEEP in order to keep the alveoli open, and keep your driving pressure below 15, and your plateau pressure below 30. Set the fraction of O2 in order to reach at least 65 millimeters of mercury of content of oxygen. Don't forget at the end of the surgery to perform recruitment maneuvers. These are very compliant lungs, so you have to recruit them.

Giovanni Scognamiglio: After the surgery, I think it is advisable to refer the patient to the ICU for extubation because they may have a pulmonary impairment, bad gas exchanges. So it is advisable and quite wise to send them to the ICU for the wake-up test. Do not take off your PPE until the patient is out of the OR and as Dr. Ansaloni stated earlier, then a normal sanitization can take place.
Giovanni Scognamiglio: Next. Okay, this is our model. This is our model before the curfew was declared or by our government. Everything's going to be all right "Andra tutto bene". We are going to pull through. Come on, we can cheer it up. Thank you very much.
Bassam Kadry: Thank you so much. I’m going to ask one question, and then hand it over to Larry. A couple of you have mentioned that there is a pretty high false negative rate in terms of the testing, and that sometimes it shows up on CT scan. So, given that the data is showing that, at least what you said, was 50% of patients who are positive are tested negative, are you placing respirator masks, and goggles, and face shields for all elective intubations, even on patients who may be asymptomatic?

Giovanni Scognamiglio: No. No, no, no. Actually, we keep a high suspicion aptitude, but if the patient that is not positive, we keep the normal PPE, so we do nothing different. We don't have sheets on the [inaudible 01:49:23]. We do not have special devices. We just act as we used to do.

Bassam Kadry: So just to clarify-

Giovanni Scognamiglio: Remember to keep a high suspicion attitude because everybody, this is a pandemic breakout, so everybody might have had contacts with positive patients, but I think that a surgical mask will be enough.

Bassam Kadry: Okay. Larry, so again, for clarification, you’re treating everybody as if they have it and you’re protecting. There’s two aspects. There's protecting the patients and then protecting the staff. So the context of the question is protecting the staff. Our staff wearing special masks, like the-

Giovanni Scognamiglio: Yeah.
Bassam Kadry: They are, and goggles.

Giovanni Scognamiglio: Yeah.

Bassam Kadry: So that's the-

Giovanni Scognamiglio: The FP3. The FP3 masks.

Bassam Kadry: Okay.

Giovanni Scognamiglio: Foxtrot Papa Three.

Bassam Kadry: Okay, so the answer to the question is all staff is wearing full protection, treating as if the patient may have COVID-19. Is that correct?

Giovanni Scognamiglio: Yeah, of course.

Bassam Kadry: Okay.

Giovanni Scognamiglio: They could have had contacts with positive patients, because this is a pandemic breakout. Even if we are not on the front line, we are quite close, and this is a great concern. I will share my experience with you. Before the curfew was cleared by the government, I told my wife to go away with my baby daughter to a country house my relatives have, because you know it would be kind of tough to go back home at the end of shift and kiss my baby daughter. So, this is a big [inaudible 01:51:17] us, for our relatives.

Bassam Kadry: Okay. Dr. Chu, would you ... Any other questions from the audience?

Larry Chu: Yes, we do have some questions.

Bassam Kadry: Okay.

Larry Chu: With the national lockdown, how are you dealing with blood product shortages?

Giovanni Scognamiglio: Pardon?

Larry Chu: Do have any shortages of blood?

Giovanni Scognamiglio: Huh?

Larry Chu: Any shortages of blood?

Giovanni Scognamiglio: They are donating blood. Yeah. Few, yeah. There are fewer than the past, but they are still donating. They are still donating. Yeah, fewer than the past.

Larry Chu: Okay.
Larry Chu: Was there a need to do a tracheostomy in any of your patients?

Giovanni Scognamiglio: Yes, of course. We performed early tracheostomy. Actually, our average is on the third day after hospitalization for the ICU patients.

Larry Chu: And is there anything that you want to share about that process?

Giovanni Scognamiglio: Yes it is a local protocol, of course, it is our experience.

Larry Chu: What percentage of the hospitalized COVID-19 patients have needed the helmet CPAP or BIPAP?

Giovanni Scognamiglio: I think about 10%. Yeah, and we keep them in the ICU. Then we perform a tracheostomy because it is kind of easier to wean them from the vent.

Larry Chu: Can you tell us about the noninvasive ventilation requirements, and how you managed that?

Giovanni Scognamiglio: Actually, yeah. We put our PPE on and then we enter the room and all the nurses and the staff, the medical staff. So, surgical cap, eye shield, FP3 masks, a waterproof gown, and covers on their shoes.

Larry Chu: Can you talk a little bit about how you make decisions in balancing the risk of procedures to the staff who are involved in doing the procedure compared to the diagnostic value? For instance, on aerosolization of the virus during lavage.

Giovanni Scognamiglio: If the procedure is needed, we don't think about the consequences. We do what's best for the patient. If we need that broncho-lavage, we do it, we perform it. No matter the risk for us. No fear.

Bassam Kadry: Larry, could I ask a follow up question to that? Given that the clinical picture for COVID-19 is pretty strong, what is the value of the lavage, and what are you looking for in particular? If you could walk us through that process as to when you do it.

Giovanni Scognamiglio: It is very important also for bacterial superinfections, so it can be very useful for us because they can undergo VAPS, ventilator associated pneumonias. So a broncho-lavage can be quite diagnostic, to start an antibiotic therapy.

Bassam Kadry: So just to clarify, the clinical picture is a patient starts getting secretions, which is suggestive of a bacterial superinfection in which you then need to speciate, and at that point you do lavage, but you're not doing lavage ... Go ahead.

Giovanni Scognamiglio: Could you repeat, please?

Bassam Kadry: So I just wanted to get specificity on the circumstances. So most patients are without secretions-
Giovanni Scognamiglio: Yes, of course.

Bassam Kadry: ... but then you may get a patient now who's developing secretions.

Giovanni Scognamiglio: Yeah, of course.

Bassam Kadry: At that point, you're suspecting a bacterial, like a ventilator associated pneumonia. At that point, you do the lavage to speciate the bug, and that's when you're doing lavage.

Giovanni Scognamiglio: Yes, you got it.

Bassam Kadry: Is that it?

Giovanni Scognamiglio: You got it.

Bassam Kadry: Okay.

Larry Chu: Do you have data on how many anesthesiologists have become infected, given that we are likely performing most of the invasive procedures compared to other healthcare workers?

Giovanni Scognamiglio: So far, none. We are a crew of 50 anesthesiologists, and so far no one is infected. We are kind of lucky after two weeks.

Larry Chu: Do you have any idea why that might be?

Giovanni Scognamiglio: We protect ourselves very well. We are very concerned about protection. We had time to prepare ourselves because the breakout here arrived a few days after than in Northern Italy, so we had time to prepare ourselves.

Larry Chu: Are there other health care workers at your hospital that had been infected?

Giovanni Scognamiglio: Yeah, five. 5% of the physicians working in our hospital.

Larry Chu: But none of them are anesthesiologists?

Giovanni Scognamiglio: No, none.

Larry Chu: All right, and then one last question. Patients usually have drops in function at least 24 hours prior to decompensation. Do you see acute drops in function right before death or days preceding?

Giovanni Scognamiglio: Yes. Yes. This is kind of typical. Actually, they are in their bed reading the newspaper and then suddenly they have respiratory distress. This kind of typical, so there is an acute drop.

Larry Chu: So it's an acute drop?
Giovanni Scognamiglio: Yeah.

Larry Chu: Okay. All right. Back to you, Bassam.

Bassam Kadry: There was one more question, Giovanni, that I wanted to ask. You mentioned that your family, in a way you sort of quarantined them, they're in the country.

Giovanni Scognamiglio: Yes.

Bassam Kadry: So the question that we have is, does it make sense for healthcare professionals if they are symptomatic to sort of go instead of back home but go to a hotel, or are another question is, are staff and faculty deliberately not going back, or staying away from their families?

Giovanni Scognamiglio: Yeah. This, this can be an option. In fact, a few physicians who work here have decided, this is not for everybody, but I decided to send my family in the countryside because it is much more secure. So I think I took the right decision because now I can go home and touch everything and contaminate everything, but it's kind of, of course, this is kind of personal. It's personal, it is my opinion.

Larry Chu: And how much time are you planning to adopt this, I guess, personal protocol you've implemented?

Giovanni Scognamiglio: Will you repeat please?

Bassam Kadry: Are you planning to do this for one week, two weeks, one month, two months?

Giovanni Scognamiglio: Okay, okay. I get you. Gotcha. Actually, I will wait for the government to retire the curfew. So when there is no curfew, I will let my family come back to Cesena.
Okay. The last section is an important section and for those who are lucky enough to make it through, is how do we plan for discharge planning, and Dr. Costanza Martino is going to be talking about this.
Discharge Planning and Protocols
Costanza Martino, MD

1. What tests are needed prior to patient discharge? (e.g. Serial Nucleic Acid tests?)
2. Does a patient need to stay quarantined post discharge and if so for how long?
3. Have you seen any readmissions and if so for what reason(s)?
4. Are you managing any COVID-19 patients outside of the hospital? If so, how?
5. What advice do you wish you could have given yourself to best prepare for patient disposition?
6. Question and Answer

Costanza Martino: Hi, thank you for the invitation. I'm an intensivist, so I will speak about something that is done from other type of doctor because the discharge from the hospital is down from ward. But I can tell you what is doing in my hospital because the reason, the protocol in Italy for the patient discharged from hospital, and there are currently no protocols in our hospital, for example, on specific tasks. We use now clinical discharge criteria, and with clinical discharge criteria are absence of fever for three days before the time of discharge, a significant clinical improvement, and symptoms start more than 10 days from the decision of the discharge.

Costanza Martino: The negativisations, the negative phalangeal swab is not a criterion for discharge, only clinical criteria. And about the second question, does a patient need to stay in quarantine post discharge? Yes. Yes, they have to stay in quarantine for 14 days after they're discharged from the hospital, and where? Now they stay, if they are self-sustainments, if they stay at home alone in a room, a ventilated room with open widows, they open windows, but they have to stay alone. And if they are not so able for the self-sustenance ... In our area, we live in an area called Romania. We, we are organizing the possibility to have a quarantine in a hotel, a hotel of the tourist [inaudible 02:03:32]

Costanza Martino: And what about the third question? Have you seen a re-admission? Yes, we have seen. Now, we don't have patient discharge from the hospital, intensive patients, only patients admitted to wards, but we have seen readmission when we discharged patients before seven days from the beginning of symptoms. So we changed our protocols using the criteria of the 10 days.
Costanza Martino: The fourth question, have you been managing any COVID patient that's out now, outside of the hospital now? No. And about the advice, the advice is to move faster than, as the improvement of resources, of facilities for these patients, for all the steps of the pathway sub-intensive care pathway, ward pathway, and return to home. And another advice is to not discharge patients before the 10 days to avoid readmission, because it's not yet finished, the adaptive immunity stage of these disease. Thanks.

Bassam Kadry: Thank you Dr. Martino. I'm going to open the floor for questions. So Larry, if you want to field the questions from the audience.

Larry Chu: Okay. We're still waiting for some questions to come in. While we're waiting for questions, I'll ask one. It was brought up, I think at the beginning, that one of the unforeseen issues in this pandemic was actually discharge planning. That was something that perhaps was unanticipated in terms of giving a lot of thought early on. What might you recommend to us here in the United States around the issue of discharge planning that we could focus on now?

Costanza Martino: You have to [foreign language 02:06:45]. You have to instruct, very well, the patients and the caregiver about these diseases, these symptoms, but also how to stay in isolation in the quarantine. It's very important. Not outside. Yes. You have to respect all the rules to not go outside from this room. You have not to have meetings. It's very important.

Costanza Martino: Okay, because we are thinking to bring nurses to their home.
Costanza Martino: Yes, because they are not alone. It's very important that you organize a different type of treatment of these patients inside their home.

Larry Chu: Well, how would you relate discharge planning of a patient with COVID-19 to, for instance, other community communicable diseases like for instance tuberculosis or other conditions? You mentioned a home nurse. Would there be elements of discharge planning that we could plan for here that would benefit from supporting patients after discharge, better, like home nursing or social work or, or other safety.

Costanza Martino: Nursing are very important. Yes, it's a solution.

Larry Chu: How about telemedicine?

Costanza Martino: But now, we have not data, because we have few patients discharged at home. We have started now, the war.

Larry Chu: And do you find that once you are infected or have gone through an infection that you then have immunity or you no longer can get infected?

Costanza Martino: Nobody knows.

Male: Nobody.

Costanza Martino: We don't know. We don't know when we are not infected. You have two swabs negative, it's not so sure that you are not...

Costanza Martino: ... free from this virus.

Larry Chu: Have you any experience in telemedicine with discharge planning of patients, using telemedicine?

Costanza Martino: No. No, in Italy, not.

Larry Chu: Okay. All right. Well, thank you. This was very helpful. Back to you, Bassam.

Bassam Kadry: There was a few more questions I think, Dr. Circelli, if you're there, may be a good person to answer. One was about convalescent plasma therapy. Have you implemented this sort of antibody therapy or a serum?

Alessandro Circelli: We have not the experience of plasma therapy. We have some paper from China, but not for we have not experience on this.

Bassam Kadry: Okay. The other question was about the anti-malarial medications, sort of [inaudible 02:10:53]. Have you been using these medications, and what has your experience been to date? Hello?
Alessandro Circelli: Well, we started to use a dosage of 200 milligrams twice a day, and we have to see the results. I can’t give now if it’s an effective vax.

Bassam Kadry: Okay. Well this session ...

Larry Chu: Go ahead.

Bassam Kadry: I was going to say, again, I want to thank all the panelists and speakers. It’s past 7:00 your time, and I know we are very gracious for you taking the time. I also want to thank all the attendees who have attended this event. This event was recorded and it will be distributed. There have been questions about the slides as well so those will be sent out, and I want to make sure that during these unprecedented times that if there’s a need to redo this event, we will let the audience know. And with Larry, I don’t know if you have any wrap-up statements.

Larry Chu: I want to remind our audience that the AIM lab, and Learnly do have our COVID-19 evidence service. So we are taking questions, and we’ll research those questions for the best evidence-based medicine to support your answers. So please go to our website and we’ll, you know, we have Dr. Amy Price and our research staff to try to help you get evidence-based medicine answers to your questions. We will transcribe the answers from our experts, and publish those for you in one of our evidence service documents that will be on our website as Bassam mentioned, and we hope to do more of these webinars if you feel that this was useful, which I certainly do.
Larry Chu: I want to thank all of the doctors who participated today for your time. I know how busy you are, and I want to thank you for being so generous with your time. The information that you've given us has been so helpful in giving us some ability to prepare now for, I think, what we will see soon here in the United States. So, definitely on behalf of all of the attendees today, and what I've already read from the comments and from people who've been texting me, they are so thankful for the advice that you've given us for your time today. We really appreciate all of [inaudible 02:14:07] shared, and they're calling you heroes.

Larry Chu: They really appreciate all of your expertise, and I'm sure they will want to be in touch with you, and we hope maintain this connection, and as Bassam mentioned, perhaps even do this again. So, thank you. Thank you to our audience and we will be in touch. Look to our website for updates.

Bassam Kadry: Larry, Vanni wants to mention one thing. Sorry for cutting you off. Go ahead, Vanni.

Giovanni Scognamiglio: Remember to all audience, that we are not losing the war, we are fighting the war. Thank you.

Larry Chu: I also want to remind our audience we do have a mobile app, our COVID-19 mobile app. You can also get updates there for information. So, look for all of that on our website. All right, and Bassam, I'll leave you with the last word.

Bassam Kadry: No, I want to thank everybody and you know, thoughts and prayers to everyone around the world and you know, stay tuned. We will likely do a followup, and I want to thank everybody again. Thank you very much. Bye, bye now.

Larry Chu: Bye. Thank you.


Bassam Kadry: Ciao.
Useful Resources & References

Useful Daily Resources and References
ACS: https://www.facs.org/about-acss/covid-19/information-for-surgeons
ACEP: https://www.acep.org/corona/COVID-19/
JAMA: https://jamanetwork.com/journals/jama/pages/coronavirus-alert
Singapore Dashboard: https://co.vid19.sg/dashboard

Ali Baba Foundation:

Personal and Community Education and Protection
https://docs.google.com/document/d/111k1L5D9TZNShV5Gr2AJ7grfuXmEx_dYXAZcNwEebQI/preview#heading=h.abb7njb11f1